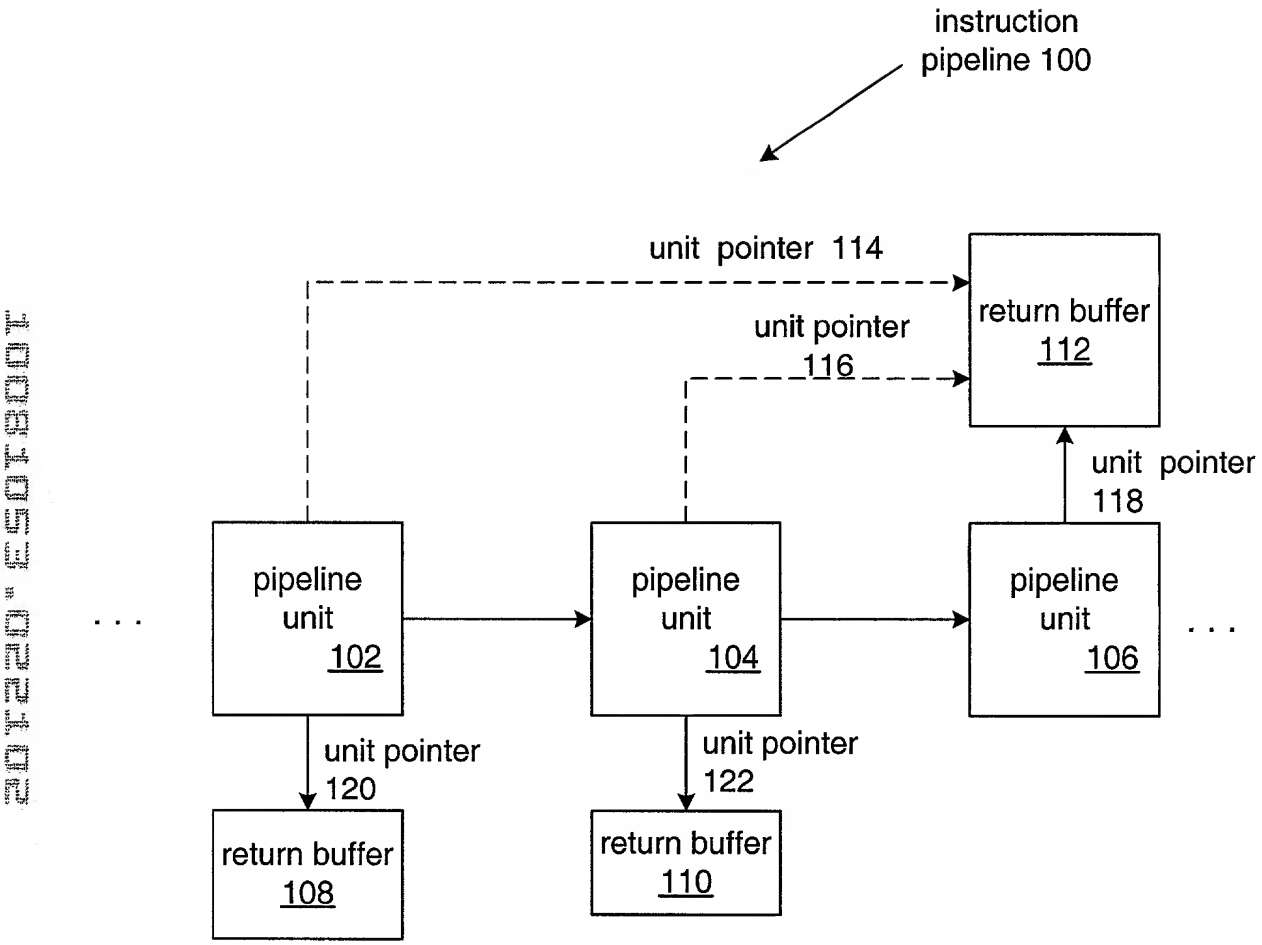
instruction
pipeline 100
unit pointer 114
return buffer
112
unit pointer
116
unit pointer
118
pipeline
unit
102
pipeline
unit
104
pipeline
unit
106
unit pointer
120
unit pointer
122
return buffer
108
return buffer
110

Figure 1

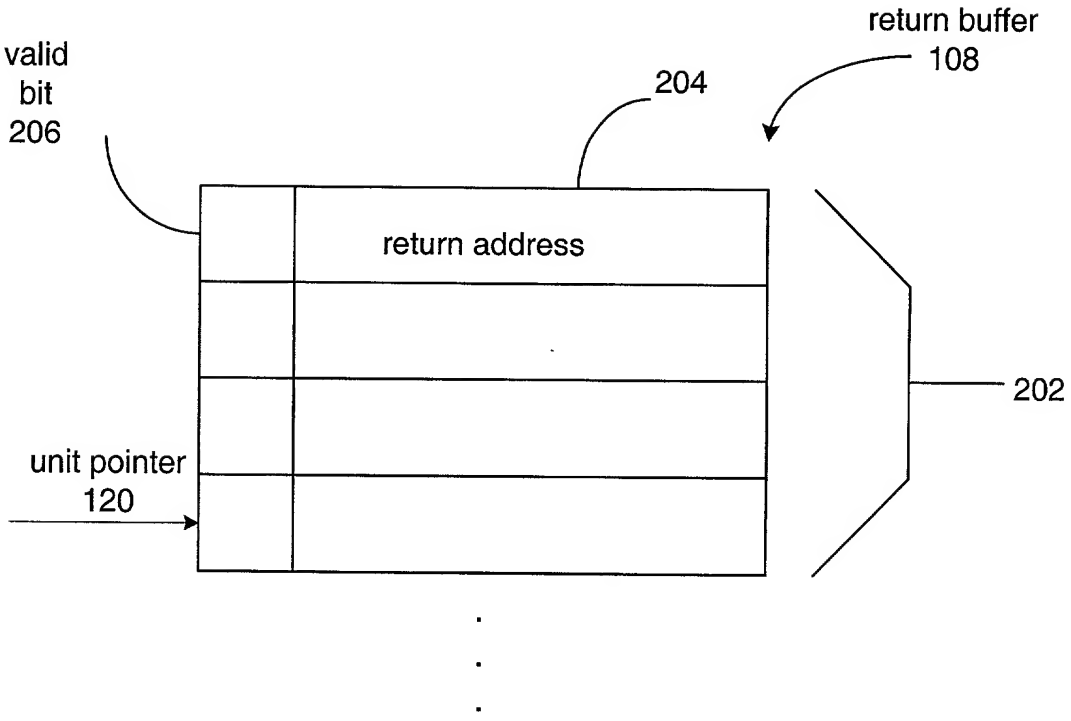
return buffer
108
valid
bit
206
204
return address
202
unit pointer
120

Figure 2

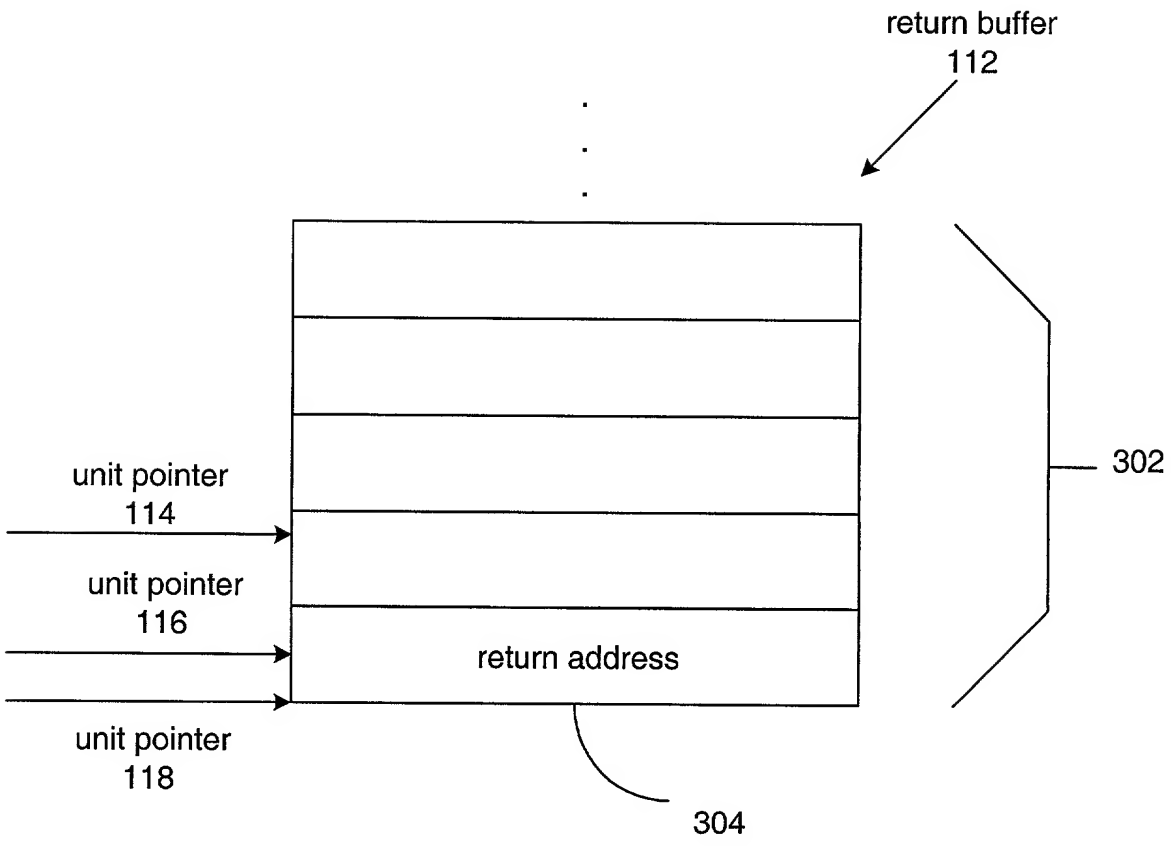
return buffer
112
302
unit pointer
114
unit pointer
116
unit pointer
118
return address
304

Figure 3

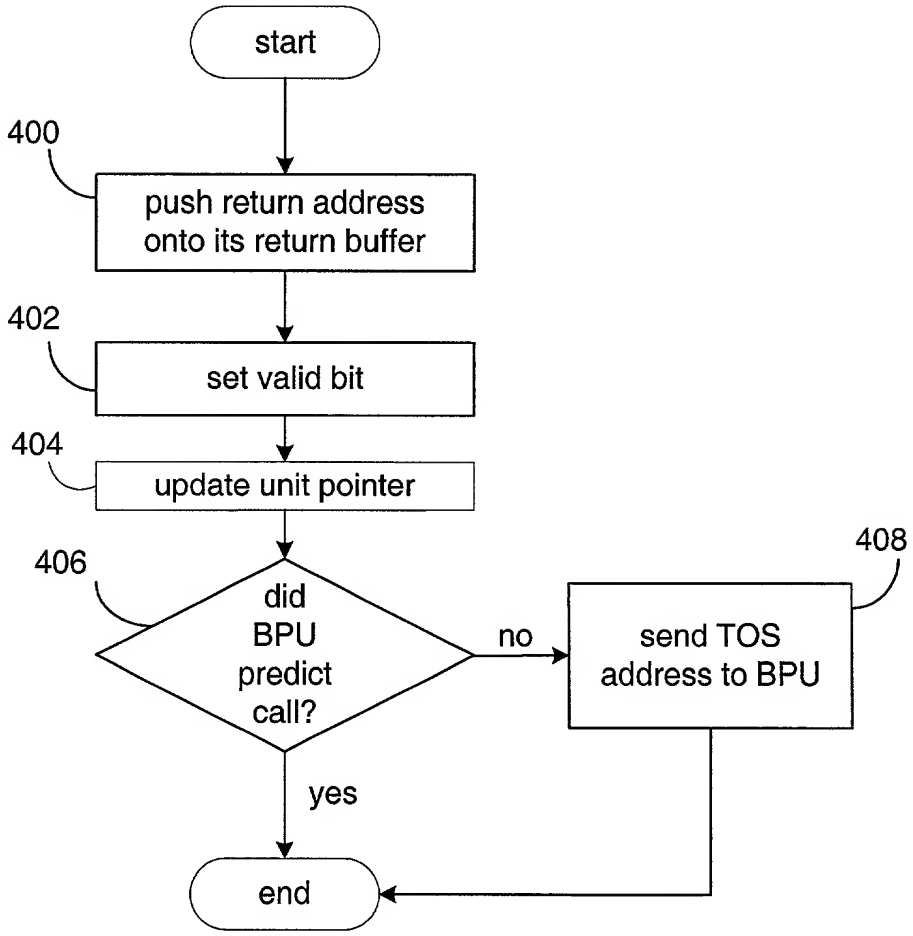
start
400
push return address onto its return buffer
402
set valid bit
404
update unit pointer
406
did BPU predict call?
no
408
send TOS address to BPU
yes
end

Figure 4

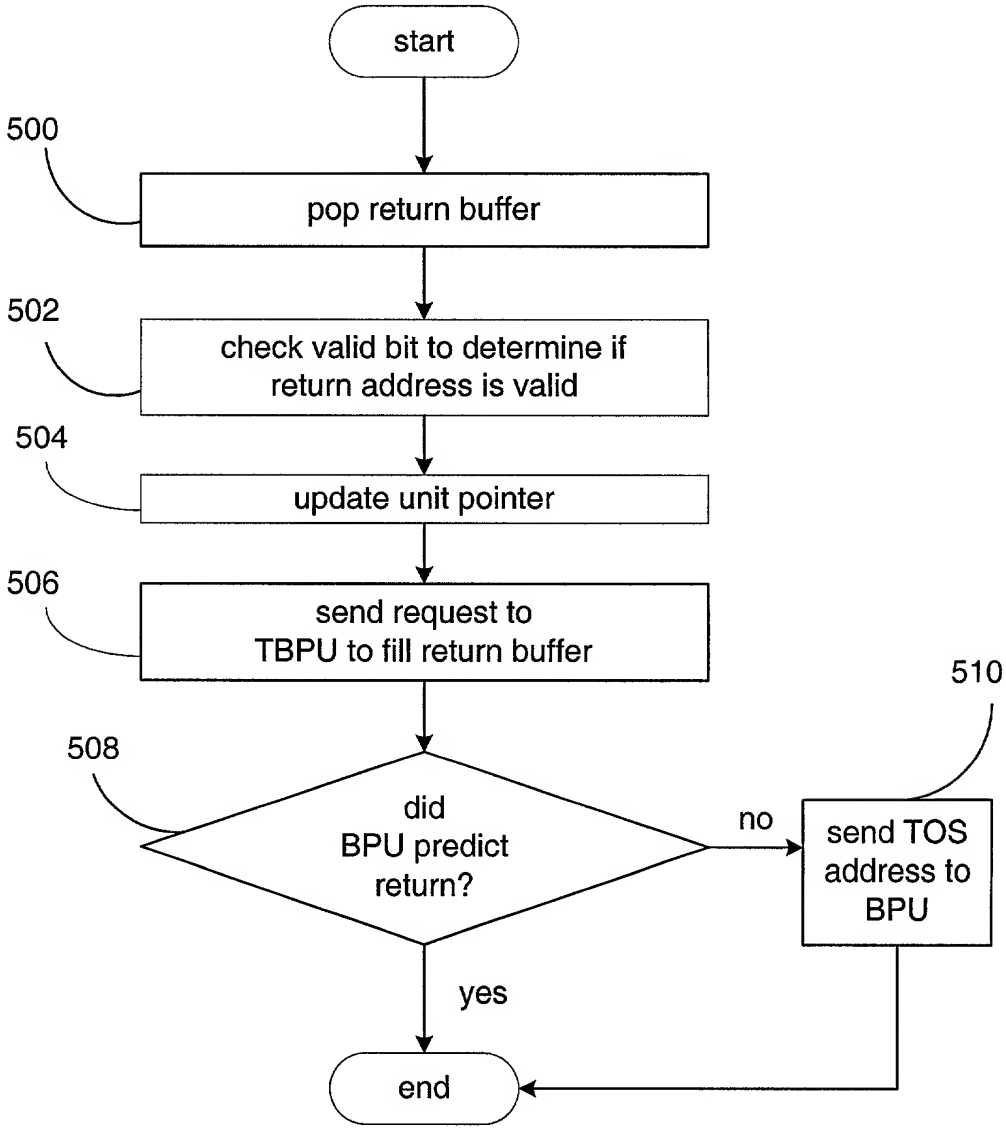
start
500
pop return buffer
502
check valid bit to determine if return address is valid
504
update unit pointer
506
send request to TBPU to fill return buffer
508
did BPU predict return?
no
510
send TOS address to BPU
yes
end

Figure 5